

CURRICULUM VITAE

Sotirios Doukas, MD

Current Position:

Postdoctoral Associate in Surgery (Otolaryngology)

Department of Surgery (Otolaryngology),
Yale School of Medicine, New Haven, CT, USA

Higher Education, training and positions:

Date	Position	Degree
Sept 2010 -May 2016	Medical student in General Medicine program University of Pavol Jozef Safarik in Kosice (UPJS), Faculty of Medicine, Slovak Republic	MD (MUDr.)
July-Aug 2015	Post-graduate Research Fellow in Surgery (Otolaryngology) Yale Medical School, New Haven, CT	
May 2016	Sub-intern (clinical elective) in Otolaryngology & Head and Neck Surgery, Yale New Haven Hospital, New Haven, CT	
Sept 2016-today	Post-doctoral Associate in Surgery (Otolaryngology), Yale Medical School, New Haven, CT	

Medical Licenses, Memberships and Professional Examinations:

United States Medical License Examination (USMLE) Step 1	Sept 2015
United States Medical License Examination (USMLE) Step 2 CS	Feb 2018
United States Medical License Examination (USMLE) Step 2 CK	July 2018
State Examinations, UPJS, Faculty of Medicine, Slovakia	Sept-June 2016
License to Practice Medicine, Hellenic Medical Association, Greece	Aug 2016-today
Full registration as a Medical Practitioner, General Medical Consul, United Kingdom	Feb 2017-today

Honors and Awards:

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Best Scientific Presentation Award, 22o Panhellenic Respiratory Congress 2013, International Congress Centre of Megaro Mousikis Athinon, Athens, Greece October 2013

Annual Dean's Award for 2014, UPJS, Faculty of Medicine, Slovak Republic May 2015

2018 Paediatric Virology Award for Young Investigators, 4th Workshop on Paediatric Virology, Athens 2018, Paediatric Virology Study Group (PVSG) October 2018

Research Experience:

➤ **Postdoctoral Research Work**

Sept 2016- today **Postdoctoral Associate in Surgery (Otolaryngology)**, Yale Medical School, New Haven, CT, USA

Principal Investigator: Clarence T. Sasaki, MD FACS *Charles W. Ohse Professor of Surgery*

Lab: The Yale Larynx Lab

Neoplasia team of the Yale Larynx Lab:

Project title: "Investigation of underlying mechanism by which acidic bile induces molecular alterations, increasing the risk of hypopharyngeal cancer"

- As member of the neoplasia group I am involved in *in vitro* and *in vivo* experiments, providing insights into the mechanism by which, acidic bile induces cancer related mRNA and miRNA phenotypes, and activates anti-apoptotic pathways, increasing the risk for hypopharyngeal cancer.
- Our team has already explored both *in vitro* and *in vivo*, the use of pharmacologic and dietary NF-kappa-B inhibitors, to prevent the oncogenic acidic bile effect on hypopharyngeal cells.
- As Postdoctoral Associate, I actively assist in training and mentoring of surgery residents during their research rotation.

Physiology group of the Yale Larynx Lab:

Project title: Investigation of the evoked swallowing neurophysiology

- As a member of the physiology group I actively contribute to the exploration of the laryngeal reflexes such as Glottic Closure Reflex and Swallowing Reflex under general anesthesia, using *in vivo* models.

➤ **Medical Student Research Work & Laboratory training**

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July **Post-Graduate Research Fellow in Surgery (Otolaryngology),**
-Aug 2015 Yale Medical School, New Haven, CT, USA

Principal Investigator: Clarence T. Sasaki, MD FACS, *Charles W. Ohse*
Professor of Surgery

Lab: Neoplasia team of the Yale Larynx Lab

Project title: “The Effect of laryngopharyngeal reflux induced NF-κB activation in malignant transformation of in vivo hypopharyngeal mucosa”.

- As a postgraduate fellow, I conducted research in Yale Larynx Lab, performing cell culturing and molecular analysis, including RNA isolation, reverse transcription, real-time qPCR, and IHC.
- Techniques applied and training
 - Animal treatment and tissue collection
 - Isolation and cell culturing of primary cells
 - Gene expression analysis by real time qPCR, AQUA

March-May **Student Science Work,** Tissue bank of UPJS Faculty of medicine, Slovak
2013 Republic and Hospital L. Pasteur, Kosice, SK

Principal Investigator /Supervisor: MVDr. Jan Rosocha, CSc

Project title: “Isolation and characterization of autologous mesenchymal stem cells from human amnion and chorion”.

- During this period, Mesenchymal Cells, derived from Human Amnion and Chorion were cultured in clean lab and then characterized as Mesenchymal Stem Cells (MSCs) based on their CD marker profile by flow cytometry.
- Techniques applied and training:
 - MSCs cell culturing
 - Characterization of MSCs by Flow cytometry
- Results: Human amnion and chorion can be used as a potential source of MSCs.

Dec 2012 **Volunteering/collaboration,** Department of Pediatric Surgery, General
-Feb 2013& Hospital of Larissa & Department of Molecular Histopathology, University of
April 2013 Thessaly, Greece.

Research Supervisor: Andreas Markou, MD

Project title: “Molecular analysis of Pediatric neoplasia and genetic syndromes”

- During this period, I conducted research and involved in publication of two case reports in pediatric surgery.

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- A case report discussing a case of penile condyloma acuminatum at the urethra meatus of a 2.5-year-old child, and a case investigating the mismatch repair mRNA expression profiles in the pigmented lesions of a child with Peutz-Jeghers Syndrome.

Dec 2012

Medical Student Research Experience

-Feb 2013

Department of Pulmonology; Department of Molecular Histopathology, University of Thessaly, Greece.

Supervisor: Konstantinos I. Gourgoulianis, MD, PhD. Prof in Pulmonology

Project title: “Correlation of miR-422a, miR-21 and miR-155 analysis with hMSH2 and hMLH1 mRNA expression profiles in non-small cell lung carcinomas and their adjacent normal tissues”

- During this period, I involved in a pilot study investigating the correlation of miR-422a, miR-21 & miR-155 levels with hMSH2 & hMLH1 mRNAs levels in Non-Squamous Cell Lung Carcinomas (NSCLC) and their adjacent normal tissues (NTs).
- Techniques applied:
 - Total miRNA isolation from total RNA
 - Q- RT-real time PCR for specific mature miRNAs
 - Correlation of miRNA data with MMR mRNA. Statistical analysis.

July

Medical Student Research Experience

-Sept 2012

Department of Pulmonology & Department of Molecular Histopathology, University of Thessaly, Greece

Supervisor: Dimitra Vageli, PhD

Title: “hMSH2 and hMLH1 gene expression patterns in lung adenocarcinoma and squamous cell carcinomas. Correlation with patient survival and response to adjuvant chemotherapy treatment”.

- The main aim of this project was to determine the differences in hMSH2 and hMLH1 gene expression patterns between lung adenocarcinoma and squamous cell carcinoma.

Techniques applied:

- Total RNA isolation from fresh-frozen tissues
- Reverse Transcription
- Q- RT-real time PCR (Light Cycler 3.1, Instrument)
- Correlation of molecular data with patient survival and response to chemotherapy. Statistical analysis.
- Results: This study revealed that Mismatch Repair mRNA phenotyping could be a valuable prognostic tool for the assessment of

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survival of lung cancer patients with potential applicability in chemotherapy selection.

July

Medical Student Research Experience

-Sept 2011

Department of Molecular Histopathology, University of Thessaly, Greece

Research Supervisor: Dimitra Vageli, PhD

Project title: “Mismatch Repair genes expression in Urinary bladder carcinomas”

- During period, I received laboratory training in techniques including the preparation of reagents and gels for PCR and electrophoresis, as well as statistical analysis of molecular expression data.
 - The main research aim was the investigation of the DNA Mismatch Repair mRNA profiles in urothelial carcinomas.
 - Techniques applied and training:
 - Total RNA isolation from fresh-frozen tissues
 - Reverse Transcription
 - Q- RT-real time PCR (Light Cycler 3.1, Instrument)
 - Electrophoresis
1. Results: A statistically significant association was observed between *hMSH2* and *hMSH6* mRNA ratios of expression in bladder tumors relative to their corresponding adjacent normal tissues, as well as a significant reduction of *hMSH6* levels.

Summary of Publications:

1. Vageli DP, Giannopoulos S, **Doukas SG**, Kalaitzis C, Giannakopoulos S, Giatromanolaki A, Koukoulis GK, Touloupidis S. Mismatch repair hMSH2, hMLH1, hMSH6 and hPMS2 mRNA expression profiles in precancerous and cancerous urothelium. *Oncol Lett* 2013; 5(1):283-294. Epub 2012 Oct 19. PMID: 23255936.
2. Vageli DP, Zaravinos A, Daniil Z, Dahabreh J, **Doukas SG**, Spandidos DA, Gourgoulisanis KI, Koukoulis GK. hMSH2 and hMLH1 gene expression patterns differ between lung adenocarcinoma and squamous cell carcinoma: correlation with patient survival and response to adjuvant chemotherapy treatment. *Int J Biol Markers* 2013; 27(4):e400-4. doi: 10.5301/JBM.2012.9420. PMID: 22865300.
3. Vageli DP, **Doukas SG**, and Markou A. Mismatch DNA repair mRNA expression profiles in oral melanin pigmentation lesion of a child with Peutz-Jeghers Syndrome. *Pediatric Blood & Cancer* 2013; 60(10):E116-7. doi: 10.1002/pbc.24579. Epub 2013 May 15. PubMed PMID: 23677888.
4. Vageli DP, **Doukas SG** and Markou A. HPV6 Infection of an Infant's Penile Condyloma at the Urethral Meatus. *J Genet Syndr Gene Ther* 2013, 4:6;

Special Issue Title: Cancer Genetics [<http://dx.doi.org/10.4172/2157-7412.1000157>].

5. Vageli DP, Exarchou A, Zafiriou E, Doukas PG, **Doukas S**, Roussaki-Schulze A. Effect of TNF- α inhibitors on transcriptional levels of pro-inflammatory interleukin-33 and Toll-like receptors-2 and -9 in psoriatic plaques. *Exp Ther Med*. 2015;10(4):1573-1577. PMID: 23255936
6. Vageli DP, **Doukas SG**, Sasaki CT. Inhibition of NF- κ B prevents the acidic bile induced oncogenic mRNA phenotype, in human hypopharyngeal cells. *Oncotarget* 2017; 12;9(5):5876-5891. doi: 10.18632/oncotarget.23143.
7. **Doukas SG**, Vageli DP, Sasaki CT. NF- κ B inhibition reverses acidic bile-induced miR-21, miR-155, miR-192, miR-34a, miR-375 and miR-451a deregulations in human hypopharyngeal cells. *J Cell Mol Med* 2018. PMID: 29516639; doi:10.1111/jcmm.13591.
8. Sasaki CT, **Doukas SG**, Vageli DP. In vivo short term topical application of BAY11-7082 prevents the acidic bile-induced mRNA and miRNA oncogenic phenotypes, in exposed murine hypopharyngeal mucosa. *Neoplasia* 2018; 20(4); 374-386. doi: 10.1016/j.neo.2018.02.001.
9. Vageli DP, **Doukas SG**, Spock T, Sasaki CT. Curcumin prevents the acidic bile-induced NF- κ B-related oncogenic phenotype, in human hypopharyngeal cells. *J Cell Mol Med* 2018; 22(9):4209-4220. doi: 10.1111/jcmm.13701.
10. Langerman J, **Doukas SG**, Hasagawa H, Goodrich J, Lerner M, Sasaki CT. In Search of a Longitudinal Animal Model of Evoked Swallow Function. *Laryngoscope Investig Otolaryngol* 2018; 14;3(3):191-197. doi: 10.1002/lio2.161.

International Conferences:

1. **Oral Presentation: 4th Workshop on Pediatric Virology; September 2018, Athens, GRC.**
Sotirios G Doukas. Laryngeal HPV infection in children: a review of management and treatment of Juvenile-Onset Recurrent Respiratory Papillomatosis Oral Presentation
2. **Oral Presentation presented at: 23rd World Congress on Advances in Oncology and 22nd International Symposium on Molecular Medicine; September 2018, Athens, Greece**
Vageli D, **Doukas SG**, Spock T, Sasaki CT. (). Is curcumin capable of preventing the bile-reflux induced NF- κ B-related mRNA oncogenic phenotype in human hypopharyngeal cells?
3. **Oral Presentation Athens, presented at: 23rd World Congress on Advances in Oncology and 22nd International Symposium on Molecular Medicine; September 2018, Athens, Greece,**

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Vageli DP, **Doukas SG**, Sasaki CT. In vivo topical application of BAY 11-7082 prevents the acidic bile-induced mRNA and miRNA oncogenic phenotypes, in the exposed murine hypopharyngeal mucosa

4. **Oral Presentation. 19th World Congress on Advances in Oncology and 17th International Symposium on Molecular Medicine; September 2014, Athens Greece**

Sotirios G. Doukas, Zoe Daniil, George K. Koukoulis, Konstantinos I. Gourgoulisanis and Dimitra Vageli. Mismatch DNA repair expression profiles correlated with miR-422a, miR-21 and miR-155 levels in non-small cell lung carcinomas.

5. **Oral Presentation: European Respiratory Society (ERS) Conference, September 2013, Barcelona, Spain**

Dimitra Vageli, **Sotirios G. Doukas**, Theodora Kerenidi, George K. Koukoulis, Konstantinos I. Gourgoulisanis, Zoe Daniil. Correlation of miR-422a, miR-21 and miR-155 analysis with hMSH2 and hMLH1 mRNA expression profiles in non-small cell lung carcinomas and their adjacent normal tissues. *Eur Resp J 2013: 42 Suppl. 57, 441*

6. **Oral Presentation. 8th IMSCNS - International Medical Students' Congress in Novi Sad, July 2013. Novi Sad, Republic of Serbia.:**

Sotirios Doukas, D. Vageli, et al. hMSH2 and hMLH1 gene expression patterns differ between lung adenocarcinoma and squamous cell carcinoma: Correlation with patient survival and response to adjuvant chemotherapy treatment.

7. **Oral Presentation. 22o Panhellenic Respiratory Congress 2013., International Congress Centre of Megaro Mousikis Athenon, October 2013 Athens, Greece.**

D. Vageli, **SG. Doukas**, GK Koukoulis, Z. Daniil, KI Gourgouliamnis. Determination of correlation between miR-422a, miR-21, miR-155 and hMSH2 & hMLH1, Mismatch DNA repair genes, in NSCLCs

8. **Oral Presentation. 7th IMSCNS - International Medical Students' Congress in Novi Sad, July 2012, Novi Sad, Republic of Serbia.:**

Sotirios Doukas and D. Vageli. *MISMATCH DNA REPAIR TRANSCRIPTIONAL ACTIVITY IN HUMAN URINARY BLADDER.*

Languages:

Greek Language, Native Speaker.

English Language: Certified by the ECCE Michigan University of USA.

Hobbies/Interests: hiking, swimming, drawing art, history, and philosophy.

NCBI:

<https://www.ncbi.nlm.nih.gov/sites/myncbi/10Y3nyFZS5RA6/bibliography/51798825/public/?sort=date&direction=ascending>